Case Report / *Olgu Sunumu*

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A Rare Cause of Acute Abdomen in Children: Ruptured Splenic Abscess Developed Due to Brucellosis

Çocuklarda Nadir Bir Akut Batın Nedeni: Bruselloza Bağlı Gelişen Rüptüre Dalak Apsesi

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Abstract

Brucellosis, which can be complicated by the involvement of various organs or systems of the body, is becoming more common in developing countries. Splenic abscess is one of the rare complications of brucellosis. This article presents the case of a 12-year-old patient who presented with an acute abdomen caused by a splenic abscess that developed during brucellosis treatment and ruptured spontaneously. The patient, who underwent emergency surgery, was found to have a large splenic abscess that had ruptured into the peritoneal cavity. He underwent drainage of the abdominal cavity and splenic abscess, followed by cavity unroofing. He tested positive in the Brucella Rose Bengal and Coombs tests. Given that the patient developed a splenic abscess due to brucellosis during treatment, had a spontaneous rupture, presented with an acute abdomen, and was in the pediatric age group, we believe that this case presentation can contribute to the literature.

Keywords: Brucellosis, spleen, abscess, acute abdomen, child

Öz

Değişik organ veya sistem tutulumlarıyla komplike olabilen bruselloz, gelişmekte olan ülkelerde artan insidansla devam etmektedir. Bruselloza bağlı dalak apsesi ise brusellozun nadir görülen komplikasyonlarından biridir. Bu yazıda, 12 yaşında bruselloz tanısı nedeniyle tedavi almaktayken gelişmiş ve spontan perfore olup akut batın tablosuyla başvuran bir dalak apseli olgu sunulmaktadır. Acilen operasyona alınan hastada, intraperitona perfore olmuş büyükçe bir dalak apsesi tespit edildi. Batın içi ve dalak apsesi temizlenip kaviteye unroofing yapıldı. Olgunun Brucella Aglütinasyon (Rose Bengal) ve Coombs testi pozitif saptandı. Olgumuzun; tedavi altındayken bruselloza bağlı dalak apsesi gelişmiş olması, spontan perfore olup akut batın tablosuyla başvurması ve pediyatrik yaş grubunda bulunması nedeniyle literatüre katkı sağlayacağı kanaatindeyiz.

Anahtar Kelimeler: Bruselloz, dalak, apse, akut batın, çocuk

Introduction

Brucellosis remains an endemic infectious disease in many parts of the world, especially in the Mediterranean and Middle Eastern countries (1). This disease can occur anywhere in the world and affect any organ or system of the body. Numerous studies have reported that this disease can cause complications in almost every system of the body (2-5). One of these complications is splenic abscess, which is a rare condition. Although brucellosis mostly affects young people and adults, it can also affect children, especially in endemic areas. Delayed diagnosis and treatment can result in significant morbidity and mortality from brucellosis. This study aimed to present the case of a patient who presented with an acute abdomen

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due to a rare condition of splenic abscess that was caused by brucellosis and ruptured spontaneously.

Case Report

In December 2016, a 12-year-old male patient presented to the emergency department of our hospital with severe abdominal pain, left shoulder pain, vomiting, and fever.

The patient appeared pale and exhausted. Every quadrant of the abdomen exhibited severe tenderness, guarding, and rebound. There were signs of abdominal rigidity. The patient had a fever of 38.5°C, blood pressure of 100/65 mmHg, pulse of 100/min, and a respiratory rate of 30/min. Neurologic, cardiovascular, and respiratory system examination results were normal.

Laboratory tests revealed the following: Hgb level 12.2 g/dL; WBC count 20.360/mm^3; lymphocyte count 1.240/mm^3; neutrophil count 18.000/mm^3; PLT count 246 10^9/L; and CRP level 106 mg/L (10 times higher than the normal range). The findings of the liver function test and other blood parameters were normal.

Emergency abdominal ultrasonography and computerized tomography showed remarkable free fluid between bowel loops and a 75 x 55 mm cystic lesion in the anterior upper pole of the spleen. There was no hepatomegaly. Other intraabdominal organs were normal (Figure 1).

The patient had presented to our hospital's pediatric outpatient clinic because he had been experiencing abdominal pain, night sweats, weight loss, and loss of appetite for one month. He had tested positive for the Brucella Rose Bengal and Brucella Coombs tests (titer of ½.560). Abdominal ultrasonography performed at the time of presentation revealed normal findings. The patient had been admitted to the pediatric ward and was being treated with rifampicin, doxycycline, and gentamicin for seven days. After symptoms improved, the patient was discharged four days ago with oral brucellosis maintenance therapy consisting of rifampicin, doxycycline, and co-trimoxazole. It was discovered that the patient's family was involved in animal husbandry and consumed raw milk and dairy products.

After examinations had revealed signs of acute surgical abdomen, the patient was admitted to the pediatric surgery department with a preliminary diagnosis of acute abdomen and ruptured splenic cyst and was taken to the operating room for emergency surgery. The patient underwent laparotomy. He had infected (purulent) fluid in every quadrant of the abdomen, predominantly in the pelvis and left paracolic zone. There was a cavitary lesion on the anterior upper pole of the spleen with a minimal rupture measuring 7.5 cm in diameter, half of which extended exophytically beyond the spleen. The cavity was filled with purulent fluid similarly to the intraperitoneum. Samples were collected from intraperitoneal and intracavitary fluids. The free wall of the cavity outside the splenic parenchyma was excised, followed by unroofing. The abdominal cavity was irrigated and cleansed with a large amount of isotonic solution. The splenic lesion was determined to be a ruptured splenic abscess (Figure 2,3).

Postoperatively, the patient received intravenous (IV) ceftriaxone + metronidazole and continued oral therapy for brucellosis. Oral feeding was started after postoperative day one. Control of blood tests revealed that infection markers had returned to normal on day five. Serological tests from blood and infected intraabdominal and intracavitary fluids revealed a positive Brucella Coombs result at a titer of 1/1.280 as well as a positive Brucella Rose Bengal result. On the contrary, blood, intraabdominal fluid, and specimen cultures showed no microorganism growth. On postoperative day seven, IV therapies were discontinued and the patient was discharged with oral co-trimoxazole (12 mg/kg), doxycycline (4 mg/kg/day), and rifampicin (20 mg/kg/day).

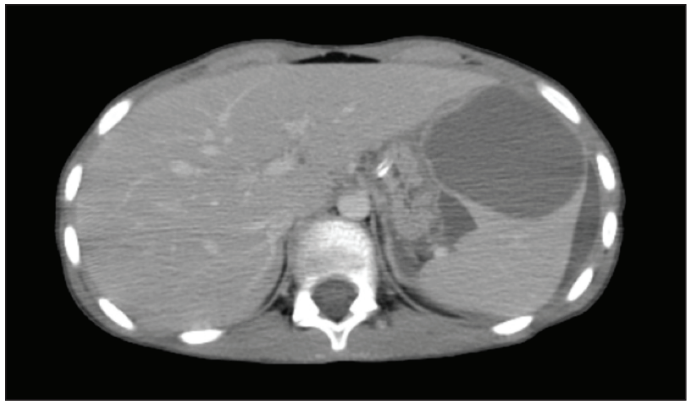

Figure 1. Abdominal computed tomography sections showing a cystic lesion anterior upper pole of the spleen.

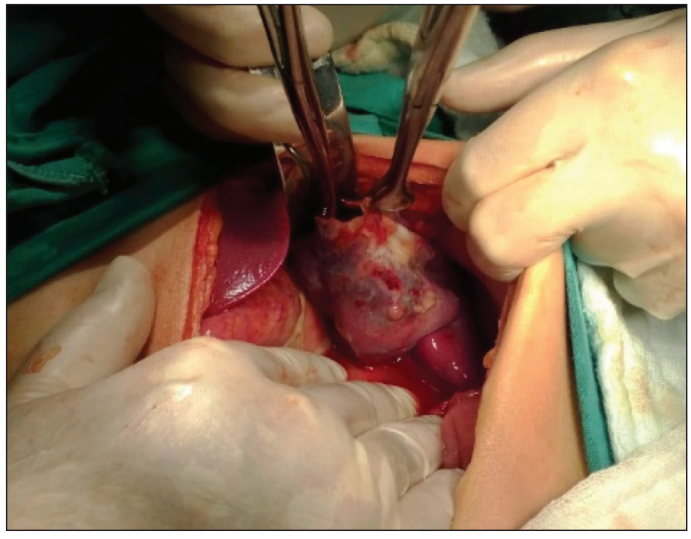

Figure 2. Intraoperative view of the ruptured cystic lesion in the anterior upper pole of the spleen.

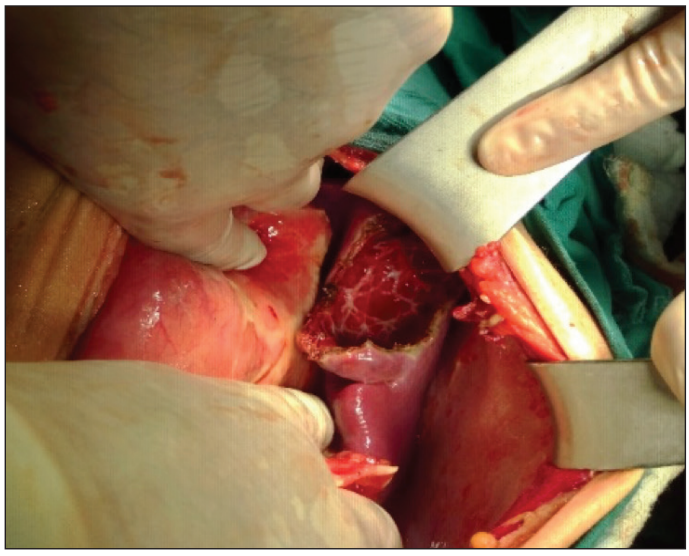

Figure 3. Intraoperative view of splenic abscess after unroofing and drainage procedures.

Given that the patient's abdominal ultrasonography was normal at initial presentation, the abscess had developed during brucellosis treatment; postoperative cultures of splenic abscess specimens and blood revealed no microorganism growth, including Brucella; blood and abscess fluid samples tested positive for Brucella antibodies; and the splenic abscess could not be explained by any other entity, coupled with the fact that Brucella cannot always be identified in cultures, it was concluded that this splenic abscess was due to brucellosis.

After the resolution of symptoms, medical therapy was discontinued at month three. In post-discharge follow-up, the Brucella Coombs agglutination test result was found to be negative only at month 14 and the Rose Bengal test result was found to be positive. The patient underwent serial ultrasound examinations at six-month intervals. The last ultrasonography at postoperative month 18 showed a 14 mm residual cavitary lesion in the spleen with no additional pathological appearance. A two-year follow-up revealed no symptoms or recurrence.

Discussion

According to the World Health Organization, brucellosis is the most common bacterial zoonotic disease worldwide, with approximately 500.000 new cases reported every year. Brucellosis is a serious condition that can lead to serious sequelae and even mortality in developing countries. Recently, the incidence of brucellosis has increased in developing countries (6). Brucellosis is transmitted to humans via contact with infected animals or via the consumption of contaminated meat and dairy products. A study conducted by Pourbagher et al. in the south of Türkiye found that consumption of milk and dairy products caused transmission in 92% of the patients (7). Transmission in our patient was also attributed to milk and dairy product consumption.

Numerous studies have shown that brucellosis can affect almost any organ or system in the body, with osteoarticular and spinal involvement being the most common. Studies have reported unusual types of involvement due to Brucella, such as renal abscess, parotid gland abscess, prostatic abscess or involvement, sublingual abscess, and ovarian abscess (2-5).

Gastrointestinal symptoms in brucellosis can range from mild symptoms such as diarrhea and vomiting to more serious complications such as diffuse granulomatous hepatitis, peritonitis, intestinal obstruction, colitis, pancreatitis, acute cholecystitis, and hepatic or splenic abscess (7-9). Patients may also present with acute abdomen, as in our case. Some studies have also found splenic infarction, rupture, hematoma, and vasculitis due to brucellosis (5,10,11). Splenic abscess due to brucellosis is a rare condition that is mostly reported in case reports. Colmenero et al. have discovered splenic involvement in three (0.37%) of 805 patients with brucellosis (8). Although the incidence of splenic abscess due to brucellosis does not exceed 2-3% even in large case series, the use of immunosuppressive agents is thought to increase the occurrence of this complication (8,12). Our patient did not use any immunosuppressive agents and did not have any disease that could cause immunosuppression. Splenic abscesses due to brucellosis can be in the form of multiple micro-abscesses or a large and solitary abscess, as observed in our patient (13-14). Although hepatic and splenic abscesses are frequently seen in patients with chronic brucellosis, they have also been reported in a small number of patients with acute brucellosis (4,14). Our patient was diagnosed with acute brucellosis because his symptoms began one month before presentation.

It has been reported that the mortality rate can reach 100% in untreated splenic abscess, but it can be significantly reduced with appropriate treatment (15). Because splenic abscess due to brucellosis is a rare condition, the most appropriate therapeutic approach has yet to be determined. The treatment of splenic abscess can be conservative or surgical. In selected cases, percutaneous drainage has become increasingly popular in recent years. Splenectomy is avoided because of immunological dysfunction, especially in younger patients (16). In our patient who presented with an acute abdomen and signs of severe peritonitis, we performed emergency laparotomy with spleen-sparing internal drainage and unroofing of the cavity.

A literature review reported 28 cases of splenic abscess due to brucellosis between 1959 and 2014. While 15 (53.8%) patients could be treated with antibiotics alone, 13 patients required splenectomy in addition to antibiotherapy (17). The treatment regimen in complicated brucellosis cases differs from that used in acute brucellosis; instead of two drug combinations, triple drug combinations are used for varying durations. Published cases of splenic abscess due to brucellosis

have reported different durations of treatment. While some studies have reported successful outcomes with co-trimoxazole, doxycycline, and rifampicin therapy for seven months until the disappearance of splenic abscess on radiological examination, others have reported a successful treatment response with abscess drainage or splenectomy followed by only three months of tetracycline therapy (18,19). It has also been shown that a 3-cm splenic abscess can be treated with percutaneous drainage, followed by a combination of two antibiotics for six weeks (20). We successfully treated our patient using abscess drainage with laparotomy, followed by a three-month regimen of co-trimoxazole, doxycycline, and rifampicin. Therefore, we believe that the duration of treatment should be decided on a case-by-case basis based on clinical, laboratory, and radiological findings.

Conclusion

In conclusion, brucellosis should be considered in patients who present with abdominal pain, fever, left shoulder pain, weight loss, and fatigue, and attention should be paid to possible complications. Although rare, hepatosplenic involvement in brucellosis should be considered, and appropriate imaging methods should be used. Because hepatosplenic abscesses can cause serious complications, patients should be evaluated on a case-by-case basis to determine whether the abscess can be treated medically, minimally invasively, or surgically. Patients presenting to emergency departments with an acute abdomen, especially in regions where brucellosis is endemic, should be examined for intraabdominal abscess due to brucellosis.

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